

1 **CLAIMS**

2 What is claimed is:

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4 1. A method of communicating between two computing devices, the
5 method comprising:

6 receiving, by a first computing device, a request for content that includes an
7 item cached by the first computing device;

8 sending, by the first computing device to a second computing device, the
9 request and an identifier associated with the cached item;

10 receiving, by the first computing device from the second computing device,
11 content generated by the second computing device based on the identifier;

12 combining, by the first computing device, the cached item and the
13 generated content, and

14 sending, by the first computing device, the combined content to a
15 destination.

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17 2. The method of Claim 1, wherein the cached item includes at least
18 one of a web page and a fragment.

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20 3. The method of Claim 1, wherein the identifier includes a cache key.

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22 4. The method of Claim 1, wherein the generated content includes a
23 place holder to represent the cached item.

1 5. The method of Claim 1, further comprising incorporating, by the
2 second computing device, in the generated content at least one cacheable item and
3 metadata associated with the cacheable item, and wherein the metadata enables the
4 first computing device to cache the cacheable item.

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6 6. The method of Claim 5, further comprising deleting, by the first
7 computing device, the metadata before sending the combined content to the
8 destination.

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10 7. The method of Claim 5, further comprising:
11 caching, by the first computing device, the cacheable item; and
12 maintaining, by the first computing device, the cacheable item in
13 accordance with the metadata.

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15 8. The method of Claim 5, further comprising:
16 implementing, by the first computing device, a policy for caching the
17 cacheable item based on the metadata.

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19 9. The method of Claim 5, wherein the metadata includes at least one
20 of a name, a key, and information for identifying conditions under which the
21 cacheable item may be cached.

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23 10. The method of Claim 1, wherein the generated content includes
24 multiple items.

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2 11. The method of Claim 1, wherein the first computing device is a
3 proxy and the second computing device is a content server.

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5 12. A system comprising:
6 a proxy server configured to process a request for content having items that
7 are cached, the proxy server being further configured to forward the request along
8 with identifiers associated with the cached items; and
9 a content server configured to dynamically generate the content requested
10 by the proxy server, the dynamically generated content having information for the
11 proxy server to combine the dynamically generated content with the cached items
12 for processing the request.

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14 13. The system of Claim 12, wherein the dynamically generated content
15 includes multiple items that are not cached by the proxy server.

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17 14. The system of Claim 13, wherein the items include at least one of a
18 web page and a fragment.

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20 15. The system of Claim 12, wherein the information in the content
21 includes place holders for inserting the items cached by the proxy server.

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23 16. The system of Claim 15, wherein the place holders include at least
24 one substitution tag.
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2 17. The system of Claim 15, wherein the identifiers include cache keys
3 and each place holder is identified with at least one of the cache keys.
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5 18. The system of Claim 12, wherein a content server is further
6 configured to generate cacheable items and metadata associated with the cacheable
7 item in response to the request, and wherein the proxy server is configured to
8 cache the cacheable items in a computer-readable media and to use the cacheable
9 items to process subsequent requests based on the metadata.
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11 19. The system of Claim 18, wherein the metadata includes at least one
12 cache tag.
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14 20. The system of Claim 19, wherein the cache tag includes a key.
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16 21. A computer-readable media having a data structure comprising:
17 a first data field containing items that are generated by a content server;
18 a second data field having a first set of tags associated with the items that
19 are generated by the content server; and
20 a third data field having a second set of tags associated with items that are
21 cached by a proxy server.
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23 22. The computer-readable media of Claim 21, wherein each tag in the
24 first set includes at least one cache variation logic (CVL) attribute.
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2 23. The computer-readable media of Claim 22, wherein each tag in the
3 first set includes at least one of a name, a key, a time to live (ttl) value, a master
4 time to live (masterttl) value, a VaryByParam factor, a VaryByCustom factor and
5 a VaryByHeader factor.

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7 24. The computer-readable media of Claim 21, wherein each tag in the
8 second set includes a key associated with an item that is cached by the proxy
9 server.

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11 25. An apparatus comprising:
12 means for receiving a request for dynamic content that includes a plurality
13 of items wherein at least one of the items is cached by a proxy;
14 means for requesting a content server to generate the items without
15 disrupting the process workflow of the request; and
16 means for combining the generated items with the cached item; and
17 means for sending the combined content to a destination in accordance with
18 the request.

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20 26. The apparatus of Claim 25, further comprising:
21 means for generating at least one cacheable item and metadata associated
22 with the cacheable item; and
23 means for generating a policy for caching the cacheable item based on the
24 metadata.